



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO
09/944,099	09/04/2001	Suk Won Choi	054358-5005	1756

9629 7590 10/22/2003

MORGAN LEWIS & BOCKIUS LLP  
1111 PENNSYLVANIA AVENUE NW  
WASHINGTON, DC 20004

EXAMINER
----------

DUONG, TAI V

ART UNIT	PAPER NUMBER
----------	--------------

2871

DATE MAILED: 10/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/944,099

Applicant(s)

CHOI ET AL.

Examiner

Tai Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

Art Unit: 2871

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not disclose the embodiment wherein "the smectic liquid crystal has a spontaneous polarization in a range of 2 nC/cm<sup>2</sup> to 70 nC/cm<sup>2</sup> and a unit storage capacitance in a range of 1 nF/cm<sup>2</sup> to 7 nF/cm<sup>2</sup>", as recited in the amended claim 1.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant has not pointed out where the newly amended ranges are supported, nor does there appear to be a written description of the claim limitation "the smectic liquid crystal has a spontaneous polarization in a range of 2 nC/cm<sup>2</sup> to 70 nC/cm<sup>2</sup> and a unit storage capacitance in a range of 1 nF/cm<sup>2</sup> to 7 nF/cm<sup>2</sup>", in the application as filed. It is noted that the specification discloses only these ranges "if the spontaneous polarization of the smectic liquid crystal is in a range of 2 nC/cm<sup>2</sup> to 10 nC/cm<sup>2</sup>, then the unit storage capacitance of the capacitor should be in the range of 1 nF/cm<sup>2</sup> to 4.5 nF/cm<sup>2</sup>"; "if the spontaneous polarization of the smectic liquid crystal is in a range of

Art Unit: 2871

$10 \text{ nC/cm}^2$  to  $70 \text{ nC/cm}^2$ , the unit storage capacitance of the capacitor is in a range of  $4 \text{ nF/cm}^2$  to  $7 \text{ nF/cm}^2$ ; "if the spontaneous polarization of the smectic liquid crystal is in a range of  $70 \text{ nC/cm}^2$  to  $100 \text{ nC/cm}^2$ , the unit storage capacitance of the capacitor is in a range of  $5 \text{ nF/cm}^2$  to  $13 \text{ nF/cm}^2$ ".

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Hara et al of record.

Note Examples 1, 3, 4 and 6-10 of Table 1 of Embodiment 1 which identically disclose the claimed LCD (col. 22, line 6 – col. 23, line 67). In Example 1, the spontaneous polarization is  $20 \text{ nC/cm}^2$  ( $2.0 \times 10^{-3} \text{ C/m}^2$ ) and the unit storage capacitance is  $6.6 \text{ nF/cm}^2$  (corresponding to a  $C_s$  of  $1.2 \times 10^{-3} \text{ nF}$  divided by the pixel area of  $1.8 \times 10^{-4} \text{ cm}^2$ ). In Example 3, the spontaneous polarization is  $11 \text{ nC/cm}^2$  and the unit storage capacitance is  $4.4 \text{ nF/cm}^2$ . In Example 6, the spontaneous polarization is  $20 \text{ nC/cm}^2$  and the unit storage capacitance is  $2.2 \text{ nF/cm}^2$ . In Example 10, the spontaneous polarization is  $24 \text{ nC/cm}^2$  and the unit storage capacitance is  $6.6 \text{ nF/cm}^2$ .

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida et al of record.

Yoshida et al disclose in Example 4 a LCD wherein the smectic liquid crystal has a spontaneous polarization of  $91.2 \text{ nC/cm}^2$  and a unit storage capacitance in a range of  $1.03 \text{ nF/cm}^2$  to  $18.6 \text{ nF/cm}^2$  (corresponding to a storage capacitance  $C_s$  being in a range of  $0.217 \times 10^{-3}$  to  $3.91 \times 10^{-3} \text{ nF}$  divided by the specified pixel area  $S$  of  $2.1 \times 10^{-4} \text{ cm}^2$ ). See col. 25, line 60 to col. 26, line 5. Also, see Applicant's remarks regarding the unit storage capacitance and the specified pixel area  $S$  on page 4 of the amendment dated 19 February 2003. Thus, the only difference between Yoshida's LCD and that of the instant claim is the unit storage being in a range of  $5 \text{ nF/cm}^2$  to  $13 \text{ nF/cm}^2$ , as compared to the range of  $1.03 \text{ nF/cm}^2$  to  $18.6 \text{ nF/cm}^2$ . This is the case where the claimed range lies inside range disclosed by the prior art. It has been held that "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). In the instant case, it would have been obvious to a person of ordinary skill in the art to employ in Yoshida's LCD a unit storage

Art Unit: 2871

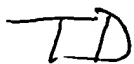
being in a range of 5 nF/cm<sup>2</sup> to 13 nF/cm<sup>2</sup> for obtaining a smectic active matrix with good gradational display, good luminance and good contrast.

Applicant's arguments with respect to amended claim 1 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments with respect to amended claim 4 have been considered but are not persuasive for the reasons set forth in the above rejection of claim 4.

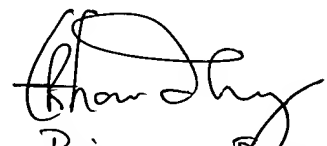
Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication should be directed to Tai Duong at telephone number 703 308-4873.



TVD/10/03

  
Primary Examiner